

What is claimed is:

sub A> 1. A joining structure comprising:
a first member having a serration portion; and
a second member to be joined to the serration portion,
wherein the first member has a surface contact portion at
location adjacent to the serration portion to be surface-contacted
with the second member.

2. A joining structure according to claim 1, wherein:
the serration portion is provided at a pressure insertion end
portion of the first member;
the second member has a pressure insertion portion to be
pressure-inserted and joined to the serration portion;
the surface contact portion includes a step portion provided
between a leading end portion of the pressure insertion end portion
and the serration portion to extend in an axial direction; and
a diameter of the step portion is equal to a diameter of the
pressure insertion portion or set between the diameter of the
pressure insertion portion and a diameter of the serration portion.

3. A joining structure according to claim 2, wherein:
the serration portion is provided to an outer circumferential
surface of the pressure insertion end portion;
the pressure insertion portion of the second member is hollow;
and
an outer diameter of the step portion is not smaller than an

inner diameter of the pressure insertion portion, and is smaller than an outer diameter of the serration portion.

4. A joining structure according to claim 2, wherein:
the pressure insertion end portion of the first member is hollow;

the serration portion is provided to an inner circumferential surface of the pressure insertion portion; and

an inner diameter of the step portion is not larger than the pressure insertion portion, and is larger than an inner diameter of the serration portion.

~~Sub A3~~ 5. A joining structure according to claim 2, wherein:
the first member is a metal member; and
the second member is a resin member.

6. A joining structure according to claim 2, wherein:
after the second member is joined to the serration portion of the first member, the step portion is in non-contact with the second member.

7. A joining structure according to claim 2, wherein:
the first member has a chamfering portion extended from the leading end portion to the step portion.

8. A joining structure according to claim 2, wherein:
the step portion is connected to the serration portion through an inclined surface.

9. A joining structure according to claim 2, wherein:

the step portion is connected to the serration portion through an inclined surface; and

a relief portion in the form of a recess is provided to a connection portion between the inclined surface and the step portion.

10. A joining structure according to claim 3, wherein:

the step portion is tapered so that the outer diameter of the step portion is made smaller toward the leading end portion.

11. A joining structure according to claim 4, wherein:

the step portion is tapered so that the inner diameter of the step portion is made larger toward the leading end portion.

sub A3 12. A joining structure according to claim 3, wherein:

the serration portion is tapered so that the outer diameter of the serration portion is made smaller toward to the leading end portion.

13. A joining structure according to claim 4, wherein:

the serration portion is tapered so that the inner diameter of the serration portion is made larger toward the leading end portion.

sub A4 14. A joining structure according to claim 2, wherein:

the step portion is formed by partially removing addendum portions of the serration portion.

15. A joining structure according to claim 2, wherein:

the step portion is formed cylindrically between the leading

end portion and the serration portion.

16. A joining structure according to claim 2, wherein:
the first member is a metal-made yoke of a propeller shaft;
and
the second member is an FRP-made cylinder of the propeller
shaft.

17. A propeller shaft having the joining structure
according to claim 1, in which the second member has a hollow portion
at an end portion, and the first member is inserted into the hollow
portion, wherein:

the serration portion is provided to an outer circumferential
surface of an insertion portion of the first member;
grooves are provided to an inner circumferential surface of
the hollow portion to engage the serration portion; and

the surface contact portion includes an inclination
suppressing surface that is provided on the outer circumferential
surface of the insertion portion and behind the serration portion
in an insertion direction, and that is surface-contacted with the
inner circumferential surface of the hollow portion to suppress
an inclination of the first member during insertion.

18. A propeller shaft according to claim 17, wherein:
two serration portions are provided to be spaced in the
insertion direction as first and second serration portions; and
the inclination suppressing surface is provided behind either

one or both of the first serration portion located forwardly in the insertion direction and the second serration portion located rearward in the insertion direction.

19. A propeller shaft according to claim 17, wherein:

the surface contact portion includes a guide surface that is provided to the outer circumferential surface of the insertion portion at its forward end and forwardly of the serration portion in the insertion direction, and that is surface-contacted with the inner circumferential surface of the hollow portion to ensure concentricity of shaft members during start of insertion.

20. A propeller shaft according to claim 19, wherein:

the guide surface and the inclination suppressing surface are substantially equal to each other in diameter.

and as >